



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/616,736 | 07/10/2003 | Donald G. Kyle | 2002IP008036 | 2760 |
| 20558 | 7590 | 05/03/2006 | EXAMINER | |
| SMITH IP SERVICES, P.C. 660 NORTH CENTRAL EXPRESSWAY SUITE 230 PLANO, TX 75074 | | | DANG, HUNG Q | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2612 | |

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/616,736

Applicant(s)

KYLE ET AL.

Examiner

Hung Q. Dang

Art Unit

2635

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This communication is in response to application's amendment dated 1/18/2006. The amended claims 1 and 18 have been entered.

Response to Arguments

2. Applicant's arguments regarding claims 1 and 18 have been fully considered but they are not persuasive.

Regarding applicant's argument in the last paragraph of page 15 of the REMARKS/ARGUMENTS, applicant argues that the Kyle et al. reference does not claim a system acoustically transmits a **non-calibrational** well parameter signal through the lower tubing structure, **prior** to converting the acoustically transmitted signal to a non-acoustic signal at a tubing structure location below the well structure, and then transmitted the converted signal upwardly past the well structure along a signal path leading to a signal receiving location. Examiner disagrees with applicant. Kyle et al. does teach acoustical transmission of non-calibrational well parameter signal. On page 5, lines 47-50, Kyle et al. specifically indicates the transmission of raw (non-calibrational) acoustic signal. The calibration process indicated by Kyle et al. is being used for determining the optimal transmission frequency, however, the well sensed parameter is still in raw (non-calibrational) form. Also, Kyle et al. does teach the conversion of the acoustically transmitted signal to a non-acoustic signal at a tubing structure location **below** the well structure (column 5, lines 47-55; the probe 32 includes a digital processor 44 for converting the raw acoustic signal ...into digital electrical form

before being transmitted to the surface via the wireline 34). The well structure is the junction between the lower portion of the tube 14 and the upper tube portion where the transceiver 16 is located; and the probe 32 is indeed located below said junction.

3. Applicant's arguments with respect to claim 38 regarding the claimed test tree have been fully considered and are persuasive. The rejection of claim 38 has been withdrawn.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5, 8, 9, 11, 17, 18, 22-24, 29-32, 35-37 and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Kyle et al. U.S. Patent 6,470,996.

Regarding claim 1, Kyle et al. teaches a method for use in a subterranean well completion (abstract) having a wellbore (See Figure 1) through which a lower section (Figure 1, unit 14) of a tubing structure extends downwardly from a well structure engaging the tubular structure and defining a substantial outward acoustic energy dissipation path at the juncture between the lower tubing structure and an upper tubing

structure section (Figure 1, section located above the ground) disposed above the well structure, a well operation method comprising the steps of:

acoustically transmitting a noncalibrational downhole well parameter signal, from a downhole parameter sensing location, upwardly through a major portion of the entire downhole length of the lower tubing structure section disposed above the downhole parameter sensing location toward the well structure (column 3, lines 19-45);

converting the acoustically transmitted signal to a non-acoustical signal (column 5, lines 47-55) at a tubing structure location below the well structure; and transmitting the converted signal upwardly past the well structure along a signal path leading to a signal receiving location (Figure 1, unit 24 is the receiving device).

Regarding claims 2 and 17, Kyle et al. also teaches the method of claim 1 wherein the acoustically transmitting step includes the steps of:

connecting a first downhole transceiver structure (Figure 1, unit 20) to the lower tubing structure section, connecting a second downhole transceiver structure (the structure including repeater 18. Repeater 18 is a transceiver) to the lower tubing structure section between the well structure and the first downhole transceiver structure, the second downhole transceiver structure having a transceiver portion and a signal converter portion (Figure 1, unit 32 is a converter), and transmitting acoustic signals from the first downhole transceiver structure through the lower tubing structure section to the transceiver portion of the second downhole transceiver structure; and the converting step is performed utilizing the signal converter portion of the second downhole transceiver structure (column 5, lines 47-55).

Regarding claims 3, 4, 8, 11, 23, 30 and 31, Kyle et al. also teaches converting the acoustically transmitted signal to a digital electrical signal.

Regarding claims 5 and 32, Kyle et al. also teaches converting the acoustically transmitted signal to an analog electrical signal (column 2, lines 1-11).

Regarding claims 9, 36 and 37, Kyle et al. also teaches extending a signal cable structure upwardly through the well structure (Figure 1, unit 34 is a signal cable; and column 3, lines 19-33).

Claims 18, 22, 24, 35 and 44 are rejected for the same reasons as claim 1.

Regarding claim 29, Kyle et al. also teaches at least one signal repeater (Figure 1, unit 18; column 3, lines 33-44) carried by the lower tubing structure section between the upper and lower transceiver structures.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6, 7, 12-16, 25-28, 33, 34 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kyle et al. U.S. Patent 6,470,996 in view of Tubel U.S. Patent 6,899,178.

Regarding claims 6, 7, 33 and 34, Kyle et al. teaches the method of claim 3, except the converting step is performed by converting the acoustically transmitted signal to an electromagnetic wave signal.

Tubel, in the same field of endeavor, teaches a method of transmitting acoustic signal in a downhole environment. Tubel also suggests transmitting downhole data in the form of electromagnetic wave signal/optical/electro-optical(photoelectrical) (column 4, lines 25-33).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide converting the acoustic signal disclosed by Kyle et al. into electromagnetic wave signal/photoelectrical signal, as evidenced by Tubel, in order to transmit downhole data in the form of electromagnetic wave signal/photoelectrical signal.

Regarding claims 12-14, 16 and 25-28, Kyle et al. teaches the method of claim 12, except specifically mentioning transmitting a control signal downwardly to the downhole transceiver.

Tubel et al., in the same field of endeavor, teaches a method for transmitting acoustic signal in a downhole environment, which includes transmitting a control signal downwardly to the downhole transceiver to control downhole devices (column 6, lines 24-40).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide transmitting control signal to the method disclosed by Kyle et al., as evidenced by Tubel, in order to wirelessly control downhole tools.

Regarding claim 15, Kyle et al. also suggests changing and using different frequencies for the transmission of the downhole transceiver (column 3, lines 34-45). Therefore, it would have been obvious to one skilled in the art to provide a control signal transmitted to downwardly to change the transmission frequency of the downhole transceiver in order to achieve optimal signal transmission.

Claim 43 is rejected for the same reasons as claims 1 and 6.

8. Claims 10, 19-21, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kyle et al. U.S. Patent 6,470,996 in view of Roberts et al. U.S. Patent 6,626,248.

Regarding claims 10, 19-21, 41 and 42, Kyle et al. teaches the method of claim 9. However, Kyle et al. does not specifically mention said well structure is a hanger structure.

Roberts et al., in the same field of endeavor, teaches a well structure in a downhole environment, and also suggests the idea of a hanger well structure (column 12, lines 1-33; also see Figure 1).

Therefore, it would have been obvious to one skilled in the art the time the invention was made to design the well structure disclosed by Kyle et al. as a hanging well structure, as evidenced by Roberts et al., to hang the well structure in the borehole.

9. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kyle et al. U.S. Patent 6,470,996 in view of Applicant's prior art admission.

Regarding claim 38, even though Kyle et al. does not specifically teach a test tree structure, and the signal cable structure extends externally around the test tree structure, however, as admitted by applicant (page 14 of Remarks/Arguments), details of the structure and use of subsea test trees are notoriously well known. Therefore, by conventionality, it would have been obvious to one skilled in the art at the time the invention was made to provide such a test tree structure to the subterranean well completion disclosed by Kyle et al.

10. Claims 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kyle et al. U.S. Patent 6,470,996 in view of Petersen et al. U.S. Patent 4,314,365.

Regarding claims 39 and 40, Kyle et al. teaches the subterranean well completion as claimed in claim 39, except an electrohydraulic module connected in the upper tubing structure section, and the signal cable structure extends interiorly through the electrohydraulic module.

However, lines 17-26 of page 7 of the specification, only discloses an electrohydraulic module 36 without any detail support regarding the claimed signal cable structure extends interiorly/exteriorly through/around the electrohydraulic module and the criticality as to why said signal cable has to go through and around said electrohydraulic module. Therefore, providing said signal cable disclosed by Kyle et al. extending through or around an electrohydraulic module is merely a choice in design by one skilled in the art.

Petersen et al. teaches an acoustic signal transmission in a wellbore, which includes an electrohydraulic transmitter in the upper tubing structure section (column 5, lines 18-24 and Figure 2, unit 26) in order to generate acoustic signal.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide an electrohydraulic module to the acoustic signal transmission method disclosed by Kyle et al., as evidenced by Petersen et al., in order to generate acoustic signals.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

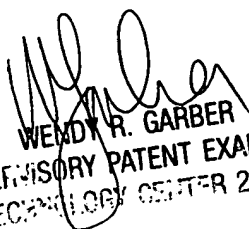
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Q. Dang whose telephone number is (571) 272-3069. The examiner can normally be reached on 9:30AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (571) 272-7308. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hung Q. Dang
4/30/2006
H.D.

H/D


WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600